

CLAIMS

1. (currently amended) A brazing strip or foil comprising:  
a first metallic layer;  
a second metallic layer; and  
a core including one or both of titanium and zirconium sandwiched between said first and said second metallic layers, wherein said core has a metallic bond with said first and said second metallic layers formed by roll bonding said core with said layers,  
wherein the metallic bond is that which is formed by roll-bonding ~~in the absence of~~  
without any heat treatment.
2. (previously presented) The brazing strip or foil of claim 1, wherein said first metallic layer is one of copper and a copper alloy.
3. (previously presented) The brazing strip or foil of claim 2, wherein said second metallic layer is one of copper and a copper alloy.
4. (previously presented) The brazing strip or foil of claim 1, wherein said first metallic layer is one of nickel and a nickel alloy.
5. (previously presented) The brazing strip or foil of claim 4, wherein said second metallic layer is one of nickel and a nickel alloy.
6. (previously presented) The brazing strip or foil of claim 1, wherein said first metallic layer is one of copper and a copper alloy, and further wherein said second metallic layer is one of nickel and a nickel alloy.
7. (previously presented) The brazing strip or foil of claim 1, wherein one of said first and said second metallic layers is copper.

8. (previously presented) The brazing strip or foil of claim 7, wherein the other of said first and said second metallic layers is of copper.

9. (original) The brazing strip or foil of claim 1, wherein the other of said first and said second metallic layers is one of nickel and a nickel alloy.

10. (previously presented) A composite comprising the brazing strip or foil of claim 1, which is metallurgically bonded to an additional alloy strip to form a self-brazing material.

11. (currently amended) A brazing strip or foil comprising:  
a first layer including one of copper, a copper alloy, nickel, and a nickel alloy;  
a second layer including one of copper, a copper alloy, nickel, and a nickel alloy; and  
a core including one or both of titanium and zirconium sandwiched between said first and said second layers, wherein said core has a metallic bond with said first and said second layers formed by roll bonding said core with said layers without any intermediate heat treating; and the ~~metallic bond is that which is formed by roll bonding in the absence of without any heat treatment~~.

12. (previously presented) A self-brazing composite comprising the brazing strip or foil of claim 11, further comprising an additional alloy strip roll bonded to one of said first or second layers to form a self-brazing material.

13. (currently amended) The brazing strip or foil of claim 11 wherein a thickness of said strip or foil is reduced by cold rolling without any intermediate heat treating.

14. (currently amended) A strip or foil comprising:  
a first layer including one of copper, a copper alloy, nickel, and a nickel alloy;  
a second layer including one of copper, a copper alloy, nickel, and a nickel alloy; and  
a core including zirconium sandwiched between said first and said second layers, wherein said core has a metallic bond with said first and said second layers formed by roll bonding said

core with said layers; and wherein the metallic bond is that which is formed by roll-bonding without any in the absence of heat treatment.

15. (previously presented) A self-brazing composite comprising the strip or foil of claim 14, further comprising an additional alloy strip roll bonded to one of said first or second layers to form a self-brazing material.

16. (previously presented) The brazing strip or foil of claim 11, wherein a thickness of said strip or foil is reduced by said—roll bonding without any intermediate heat treating.

17. (original) A seven layer brazing strip or foil comprising:

a core including one or both of titanium or zirconium sandwiched between a pair of strips or foils each as defined in claim 14, wherein said core has a metallic bond with one surface of each of said pair of strips or foils.

18. (cancelled)

19-29. (cancelled).

30. (currently amended) A brazing strip or foil comprising:

a first layer including one of copper and a copper alloy;

a second layer including one of nickel and a nickel alloy;

a third layer including one of nickel and a nickel alloy;

a fourth layer including one of copper and a copper alloy;

and a titanium layer of titanium or of a titanium alloy with said first and said second layers layered on one side of said titanium layer, and said third and said fourth layers layered on another side of said titanium layer, wherein said titanium layer has a metallic bond with at least one of said first, said second, said third, and said fourth layers, said metallic bond formed by roll bonding without intermediate heat treating.

31. (currently amended) A brazing strip or foil comprising:

a first layer including one of copper and a copper alloy;  
a second layer including one of nickel and a nickel alloy;  
a third layer including one of nickel and a nickel alloy;  
a fourth layer including one of copper and a copper alloy;  
and a titanium layer of titanium or of a titanium alloy with said first and said second layers layered on one side of said titanium layer, and said third and said fourth layers layered on another side of said titanium layer,

wherein said titanium layer has a metallic bond with at least one of said first, said second, said third, and said fourth layers, said first layer and, said fourth layer are comprised of about 0.030" thick copper before rolling and further wherein said second layer and said third layer are comprised of about 0.030" thick nickel strips before rolling said metallic bond formed by roll bonding without heat treating.

32. (currently amended) The brazing strip or foil of claim 31, wherein said first layer is roll bonded without heat treating to said second layer and then cold rolled to about 0.012" thick.

33. (previously presented) The brazing strip or foil of claim 30, wherein the weight percentage of the resulting brazing strip or foil results in about a 15Cu-15Ni-70Ti alloy upon brazing.

34. (previously presented) A brazing strip or foil comprising:  
a core including of one or both of titanium and zirconium; and  
a covering layer of one of copper, a copper alloy, nickel, and a nickel alloy, said covering layer substantially covering said core, wherein said covering layer has a metallic bond with said core formed by roll bonding without heat treating.

35. (previously presented) The brazing strip or foil of claim 34 further comprising:  
at least one additional covering layer of one of copper, a copper alloy; nickel, and a nickel alloy.

36. (original) The brazing strip or foil of claim 35, wherein said covering layer has a metallurgical bond with said additional covering layer formed by roll bonding without any intermediate heat treating.

37. (original) A brazing strip or foil comprising:

- a first metallic layer;
- a second metallic layer;
- a third metallic layer;
- a fourth metallic layer;
- a fifth metallic layer;
- a sixth metallic layer, and

a core including one or both of titanium and zirconium, said first, second, and third layers layered on one side of said core, and said fourth, fifth, and sixth layers layered on another side of said core.

38. (currently amended) The brazing strip or foil of claim 37, wherein at least one of said layers is of copper.

39. (original) The brazing strip or foil of claim 37, wherein one or more of said first metallic layer, said second metallic layer, and said third metallic layer includes one or more of zirconium, copper, and nickel, and further wherein one or more of said fourth metallic layer, said fifth metallic layer, and said sixth metallic layer includes one or more of zirconium, copper, and nickel.

40. (original) The brazing strip or foil of claim 39, wherein said second metallic layer includes zirconium and is sandwiched between said first metallic layer and said third metallic layer.

41. (previously presented) The brazing strip or foil of claim 40, wherein said second metallic layer has a metallic bond with both said first and said third metallic layers, said metallic

bond formed by roll bonding said first, second, and third layers together without heat treating prior to assembly of the brazing strip or foil.

42. (previously submitted) The brazing strip or foil claim 37, wherein said second and fifth metallic layers include zirconium, and wherein said first metallic layer is made from one metal selected from the group consisting of copper and nickel and said third metallic layer is made from the other metal selected from the group consisting of copper and nickel; and further wherein said fourth metallic layer is made from one metal selected from the group consisting of copper and nickel and said sixth metallic layer is made from the other metal selected from the group consisting of copper and nickel.

43. (currently amended) The brazing strip or foil of claim 42, wherein said core has a metallic bond with said third and said fourth metallic layers formed by roll bonding without intermediate heat treating.

44. (currently amended) The brazing strip or foil of claim 43, wherein said second metallic layer has a metallic bond with said first and third metallic layers and wherein

    said fifth metallic layer has a metallic bond with said fourth and sixth metallic layers, wherein the metallic bond is that which is formed by roll-bonding without any in the absence of heat treatment.

45. (previously presented) A brazing strip or foil comprising:  
a first layer including one or both of nickel and copper;  
a second layer including one or both of 'titanium and zirconium;  
a third layer including one or both of nickel and copper; a fourth layer including one or both of nickel and copper;  
a fifth layer including one or both of titanium and zirconium; a sixth layer including one or both of nickel and copper, and  
a core including one of titanium and zirconium, wherein said core is in a middle of said layers.

46. (previously presented) The brazing strip or foil of claim 45, wherein each of said layers has a metallic bond with any adjacent layer including said core, said metallic bond formed by roll bonding without ~~intermediate~~ heat treating.

47. (currently amended) A brazing strip or foil comprising:  
a first layer including one or both of nickel and copper;  
a second layer including one or both of 'titanium and zirconium;  
a third layer including one or both of nickel and copper; a fourth layer including one or both of nickel and copper;  
a fifth layer including one or both of titanium and zirconium; a sixth layer including one or both of nickel and copper, and  
a core including one of titanium and zirconium, wherein said core is in a middle of said layers The brazing strip or foil of claim 45, wherein the weight percentage of the resulting brazing strip or foil results in about a 20Cu-20Ni-20Zr-40Ti alloy upon brazing.

48. (Currently amended ) A brazing strip or foil comprising:  
a first layer including one or both of nickel and copper;  
a second layer including one or both of 'titanium and zirconium;  
a third layer including one or both of nickel and copper; a fourth layer including one or both of nickel and copper;

a fifth layer including one or both of titanium and zirconium; a sixth layer including one or both of nickel and copper, and

a core including one of titanium and zirconium, wherein said core is in a middle of said layers The brazing strip or foil of claim 45, wherein the weight percentage of the resulting brazing strip or foil results in about a 15Cu-10Ni-37Zr-38Ti alloy upon brazing.

49. (previously presented) A brazing strip or foil comprising:

a first layer including one or both of nickel and copper;

a second layer including zirconium;

a third layer including one or both of nickel and copper;

a fourth layer including one or both of nickel and copper;

a fifth layer including zirconium;

a sixth layer including one or both of nickel and copper, and a core layer including titanium layered in the center of said strip or foil, wherein

    said second layer has a metallic bond with both said first and said third layers, and wherein

    said core layer has a metallic bond with both said third and said fourth layers, and further wherein

    said fifth layer has a metallic bond with both said fourth and said sixth layers wherein the metallic bond is that which is formed by roll-bonding ~~in the absence of~~ without any ~~intermediate~~ heat treatment.

50. (previously presented) The brazing foil or strip of claim 49, wherein said first and sixth layers are of copper.

51. (currently amended) A brazing strip or foil comprising:

a first layer including one or both of nickel and copper;

a second layer including zirconium;

a third layer including one or both of nickel and copper;

a fourth layer including one or both of nickel and copper;

a fifth layer including zirconium;

a sixth layer including one or both of nickel and copper, and a core layer including titanium layered in the center of said strip or foil, wherein

said second layer has a metallic bond with both said first and said third layers, and wherein

said core layer has a metallic bond with both said third and said fourth layers, and further wherein

said fifth layer has a metallic bond with both said fourth and said sixth layers wherein the metallic bond is that which is formed by roll-bonding without any heat treatment The brazing strip or foil of claim 49, wherein the weight percentage of the resulting brazing strip or foil results in about a 20Cu-20Ni-20Zr-40Ti alloy upon brazing.

52. (Currently amended) A brazing strip or foil comprising:

a first layer including one or both of nickel and copper;

a second layer including zirconium;

a third layer including one or both of nickel and copper;

a fourth layer including one or both of nickel and copper;

a fifth layer including zirconium;

a sixth layer including one or both of nickel and copper, and a core layer including titanium layered in the center of said strip or foil, wherein

said second layer has a metallic bond with both said first and said third layers, and wherein

said core layer has a metallic bond with both said third and said fourth layers, and further wherein

said fifth layer has a metallic bond with both said fourth and said sixth layers wherein the metallic bond is that which is formed by roll-bonding without any heat treatment The brazing strip or foil of claim 49, wherein the weight percentage of the resulting brazing strip or foil results in about a 15Cu-10Ni-37Zr-38Ti alloy upon brazing.

53. (currently amended) A method of making a seven layer composite strip without applying heat comprising the steps of:

providing a first strip including one or both of nickel and copper;

providing a second strip including one or both of zirconium and titanium;

providing a third strip including one or both of nickel or copper;

first roll bonding said first strip, said second strip and said third strip together to form a metallic bond between said first strip and said second strip and to form a metallic bond between said second strip and said third strip to form an outer composite strip;

providing a core including one or both of titanium and zirconium; and

second roll bonding said core with a layer of said outer composite strip on each side of said core to form a metallic bond between said core and each of said outer composite strips to thereby form a seven layer composite strip.

54. (cancelled)

55. (cancelled)